

What is claimed is:

1. An apparatus comprising:

a client computer configured to fit in a person's hand, comprising:

5 a central processor unit;  
memory device coupled to the central processor unit, said memory being  
configured to store instructions to direct the central processing unit;  
input device coupled to the central processor unit;  
a communication device coupled to the central processor unit and adapted  
10 to establish a wireless communication link with one or more remotely located server  
computers; and

a display device coupled to the central processor unit, wherein said client  
computer device is adapted to act as a remote output device for one or more application  
programs running on said one or more remotely located server computers without the  
15 need for an execution environment on the client computer.

2. The apparatus as in claim 1, wherein the input device is a stylus, a microphone  
adapted to receive speech input, a pointing device, keyboard, touch pad, jog dial, joystick,  
or an infrared input device.

3. The apparatus as in claim 1, wherein the one or more application programs  
include one active application.

4. The apparatus as in claim 3, further comprising:

25 a portion of the memory device configured as a local cache; wherein drawables  
corresponding to the one or more application programs are stored in the cache for local  
retrieval and display.

5. The apparatus as in claim 1, further comprising:

first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

6. The apparatus as in claim 1, further comprising:

5 second component coupled to the memory device, said second component configured to receive a compound request message from the server.

7. The apparatus as in claim 6, further comprising:

10 third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer.

8. The apparatus as in claim 1, further comprising:

fourth component configured to transmit a user's identification information to a server; and

15 fifth component configured to receive information regarding a list of applications previously executing for that user.

9. The apparatus as in claim 1, further comprising:

20 sixth component configured to select one of a plurality of applications from a list of available applications.

10. The apparatus as in claim 1, further comprising:

25 seventh component configured to decode streams of multimedia signals on the client.

11. The apparatus as in claim 10, wherein the seventh component comprises an MPEG decoder.

12. The apparatus as in claim 1, wherein the input device includes:

30 a microphone adapted to receive spoken input, and

a voice-activity detector, whereby the voice-activity detector is configured to be activated upon the detection of a speech input present at the microphone.

13. The apparatus as in claim 12, wherein the processor is programmed to instruct the voice-activity detector to detect speech input present at the microphone, and transmit the detected speech.

14. The apparatus as in claim 13, wherein the speech input is directed toward an active application.

15. The apparatus as in claim 13, wherein the speech input is directed toward an application list manager (ALM) module, said ALM module is configured to manage an application.

16. An apparatus comprising:

a client computer configured to fit in a person's hand, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store instructions to direct the central processing unit;

input device coupled to the central processor unit;

a communication device coupled to the central processor unit and adapted to establish a wireless communication link with one or more remotely located server computers;

second component coupled to the memory device, said second component configured to receive a compound request message from the server;

third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer; and

a display device coupled to the central processor unit, wherein said client computer device is adapted to act as a remote output device for one or more application programs running on said one or more remotely located server computers over a wide-

area mobile network without the need for an execution environment on the client computer.

17. The apparatus as in claim 16, wherein the input device is a stylus, a microphone  
5 adapted to receive speech input, a pointing device, a keyboard, a touch pad, a jog dial, joystick, or an infrared input device.

18. The apparatus as in claim 17, wherein the one or more application programs include one active application.

10 19. The apparatus as in claim 16, further comprising:  
a portion of the memory device configured as a local cache; wherein drawables corresponding to the one or more application programs are stored in the cache for local retrieval and display.

15 20. The apparatus as in claim 16, further comprising:  
fourth component configured to transmit a user's identification information to a server; and  
fifth component configured to receive information regarding a list of applications  
20 previously executing for that user.

21. The apparatus as in claim 16, further comprising:  
sixth component configured to select one of a plurality of applications from a list of available applications.

25 22. The apparatus as in claim 16, further comprising:  
seventh component configured to decode streams of multimedia signals on the client.

23. The apparatus as in claim 22, wherein the seventh component comprises an MPEG decoder.

24. The apparatus as in claim 16, further comprising:

5 first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

25. The apparatus as in claim 16, wherein the input device includes:

a microphone adapted to receive spoken input, and

10 a voice-activity detector, whereby the voice-activity detector is configured to be activated upon the detection of speech input present at the microphone.

26. The apparatus as in claim 25, wherein the processor is programmed to instruct the voice-activity detector to detect speech input present at the microphone, and transmit the  
15 detected speech.

27. The apparatus as in claim 25, wherein the speech input is directed toward an active application.

20 28. The apparatus as in claim 25, wherein the speech input is directed toward an application list manager (ALM) module, said ALM module is configured to manage an application.

29. An apparatus comprising:

25 a server computer, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store instructions to direct the central processing unit;

a communication device coupled to the central processor unit and adapted to establish a wireless communication link with one or more remotely located client computers; and

instructions stored in the memory device, said instructions configured to  
5 instruct the central processor unit to establish a session with a remote client over a wireless communication network, execute an application on the server computer, and establish a communication path with the remote client such that the remote client is established as an input/output device for the server-run application.

10 30. A method of establishing a client-server communication, said method comprising the steps of:

establishing a session between the client and the server computer, said client and server computer being connected using a wireless network;

executing an application program on the server computer;

15 exporting display of the application program to the client;

receiving a user input at the server computer; and

construing the user's input at the server.

31. The method as in claim 30, wherein the step of establishing a session between the  
20 client and the server computer comprises the step of:

transmitting server system information to the client.

32. The method as in claim 30, further comprising the step of:

aggregating a number of requests to be sent to the client; and

25 transmitting a compound request to the client.

33. The method as in claim 30, further comprising the step of:

maintaining a cache of drawables transmitted to the client; and

replaying the client's state when the client reestablishes connection with the

30 server.

34. The method as in claim 30, wherein the input from the client is received in a multimodal form.

35. The method as in claim 30, further comprising:

an event system proxy, said event system proxy receives speech input from the client;

a speech recognition server, which receives speech input from the event system proxy, whereupon the server computer is configured to interact with the speech recognition server, construe the speech input at the speech recognition server, and instruct the client in accordance with the construed speech.

36. The method as in claim 30, further comprising the step of:

selectively disabling substreams of audio/visual data.

37. The method as in claim 36, further comprising the step of:

receiving an instruction from a user to selectively disable substreams of audio/visual data.